In the Claims

Claims 4, 6, 9-12, 20, 22, 24, 26-30, 32, 38-41, 43-46, 48-49, 57-58 and 60-96 have been cancelled without prejudice.

Claims 1-3, 7-8, 31, 35, 47 and 50-54 have been amended and Claims 97-101 have been added as follows:

1. (Once Amended) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer ~~containing photosensitive means~~;

a two-sided conducting layer having the light energy conversion layer secured to a first side thereof;

a charge separation layer secured to a second side of the conducting layer; and

the conducting layer ballistically transports ~~providing ballistic transport of~~ charge carriers from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer.

2. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the light energy conversion layer produces charge carriers in the form of photon-excited electrons which are ballistically transported by the conducting layer from the light energy conversion layer to the charge separation layer.

3. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the light energy conversion layer produces charge carriers in the form of photon-excited charge carrier holes which are ballistically transported by the conducting layer from the light energy conversion layer to the charge separation layer.

Claim 4. (Cancelled)

5. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the charge separation layer comprises a semiconductor.

Claim 6. (Cancelled)

7. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the light energy conversion layer comprises a plurality of [[of]] photosensitive [[means]] structures.

8. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the light energy conversion layers comprises photosensitive structures that are embedded in the conducting layer ~~photosensitive means comprising the light energy conversion layer are embedded in the conducting layer~~.

Claims 9-12. (Cancelled)

13. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the conducting layer is formed from a metal.

14. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the conducting layer is formed from a non-metal.

15. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 14 wherein the non-metal conducting layer is formed from a material selected from the group including conducting and semiconducting polymers.

16. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the conducting layer is formed from a metal oxide conductor.

17. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the conducting layer is substantially transparent.

18. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the conducting layer and charge separation layer define a Schottky barrier.

19. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the conducting layer and the charge separation layer define a tunnel junction.

Claim 20. (Cancelled)

21. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the conducting layer and the charge separation layer define a metal-insulator-semiconductor junction.

Claim 22. (Cancelled)

23. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the charge separation layer comprises an inorganic semiconductor.

Claim 24. (Cancelled)

25. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 1 wherein the charge separation layer comprises an insulator deposited on a material selected from the group including metals and semiconductors.

Claims 26-30. (Cancelled)

31. (Once Amended) [[The]] A multi-layer solid-state device for producing electrical power from light comprising:

a light energy conversion layer containing photosensitive means;

an ultra-thin, two sided, electrically conducting front contact layer having the light energy conversion layer secured to a first side thereof;

a two sided semiconductor charge separation layer having one side thereof secured to the second side of the front contact layer;

the front contact layer ballistically transports ~~providing ballistic transport of~~ electrical energy from the light energy conversion layer to the charge separation layer which eliminates the need for an electrolyte when producing electrical power from light that impinges upon the light energy conversion layer; and

an electrically conductive metal back contact secured to the second side of the charge separation layer.

Claim 32. (Cancelled)

33. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the front contact layer and the semiconductor charge separation layer define a metal-insulator-semiconductor junction which maximizes output power.

34. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the front contact layer and the semiconductor charge separation layer define a p-type semiconductor/n-type semiconductor junction which maximizes output power.

35. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the metal back contact comprises [comprising] an ohmic contact.

36. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the front contact layer comprises an ultra-thin metal film layer having a thickness of between about .5 and about 1000 nm and is formed from a material selected from the group including gold and platinum.

37. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the semiconductor charge separation layer is formed from a material selected from the group including titanium dioxide, tantalum oxide, and tungsten oxide.

Claims 38-41. (Cancelled)

42. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the light energy conversion layer is formed from a material comprising a thin film semiconductor.

Claims 43-46. (Cancelled)

47. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the photosensitive means comprising the light energy conversion layer are embedded in the front contact layer ~~conducting layer~~.

Claims 48-49. (Cancelled)

50. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the front contact layer ~~conducting layer~~ is formed from a metal.

51. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the front contact layer ~~conducting layer~~ is formed from a non-metal conductor.

52. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the front contact layer ~~conducting layer~~ is formed from a metal oxide.

53. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the front contact layer ~~conducting layer~~ is substantially transparent.

54. (Once Amended) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the front contact layer ~~conducting layer~~ and charge separation layer define a Schottky barrier.

55. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the charge separation layer comprises a semiconductor of a predetermined type, and further including a semiconductor of the opposite type positioned between the charge separation layer and the conducting layer to provide an increased barrier height and photovoltage.

56. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the charge separation layer comprises an inorganic semiconductor.

Claims 57-58. (Cancelled)

59. (Original) The multi-layer solid-state device for producing electrical power from light according to claim 31 wherein the charge separation layer comprises an insulator.

Claims 60-96. (Cancelled)

97. (New) A multilayer solid-state device for producing electrical power from light comprising:

a light energy conversion layer;

a two-sided front conducting layer having the light energy conversion layer secured to a first side thereof;

a two-sided charge separation layer having a first side secured to a second side of the front conducting layer; and

a two-sided back conducting layer having a first side secured to a second side of the charge separation layer, wherein said multi-layer solid-state device does not need an electrolyte to produce electrical power from light received at the light energy conversion layer.

98. (New) The multi-layer solid-state device for producing electrical power from light according to Claim 97 wherein the front conducting layer has photoexcitable molecular species deposited thereon which enables charge carriers to be ballistically transported from the light energy conversion layer to the charge separation layer.

99. (New) The multi-layer solid-state device for producing electrical power from light according to claim 97 wherein the front conducting layer has absorbing nanostructures deposited thereon which enables charge carriers to be ballistically transported from the light energy conversion layer to the charge separation layer.

100. (New) The multi-layer solid-state device for producing electrical power from light according to claim 97 wherein the charge separation layer is a semiconductor.

101. (New) The multi-layer solid-state device for producing electrical power from light according to claim 97 wherein the back conducting layer is an ohmic conducting layer.